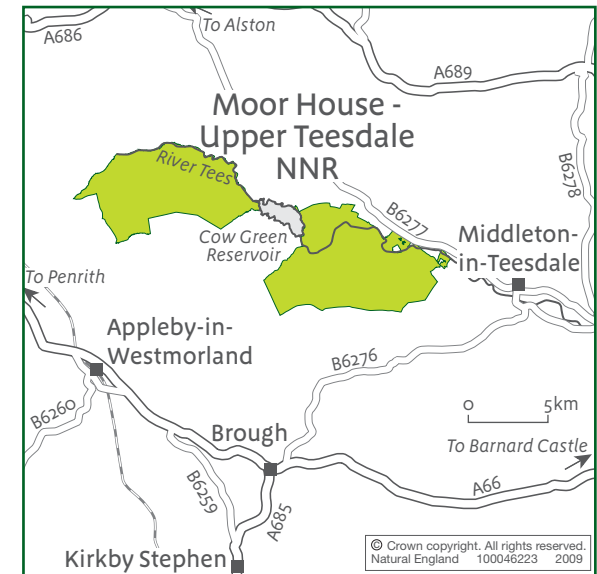


**For further information
about the Reserve contact:**

The Senior Reserve Manager
Widdybank Farm, Langdon Beck,
Forest-in-Teesdale,
Barnard Castle,
Co. Durham DL12 0HQ.
Tel 01833 622374



Moor House – Upper Teesdale National Nature Reserve



Front cover photograph: Cauldron Snout
© Natural England / Anne Harbron



Natural England is here to conserve and enhance the natural environment, for its intrinsic value, the wellbeing and enjoyment of people and the economic prosperity that it brings.

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How to get there

The Reserve is situated in the heart of the North Pennines Area of Outstanding Natural Beauty. It is in two parts on either side of Cow Green Reservoir.

A limited bus service stops at Bowlees, High Force and Cow Green on request. There is no bus service to the Cumbria side of the Reserve.

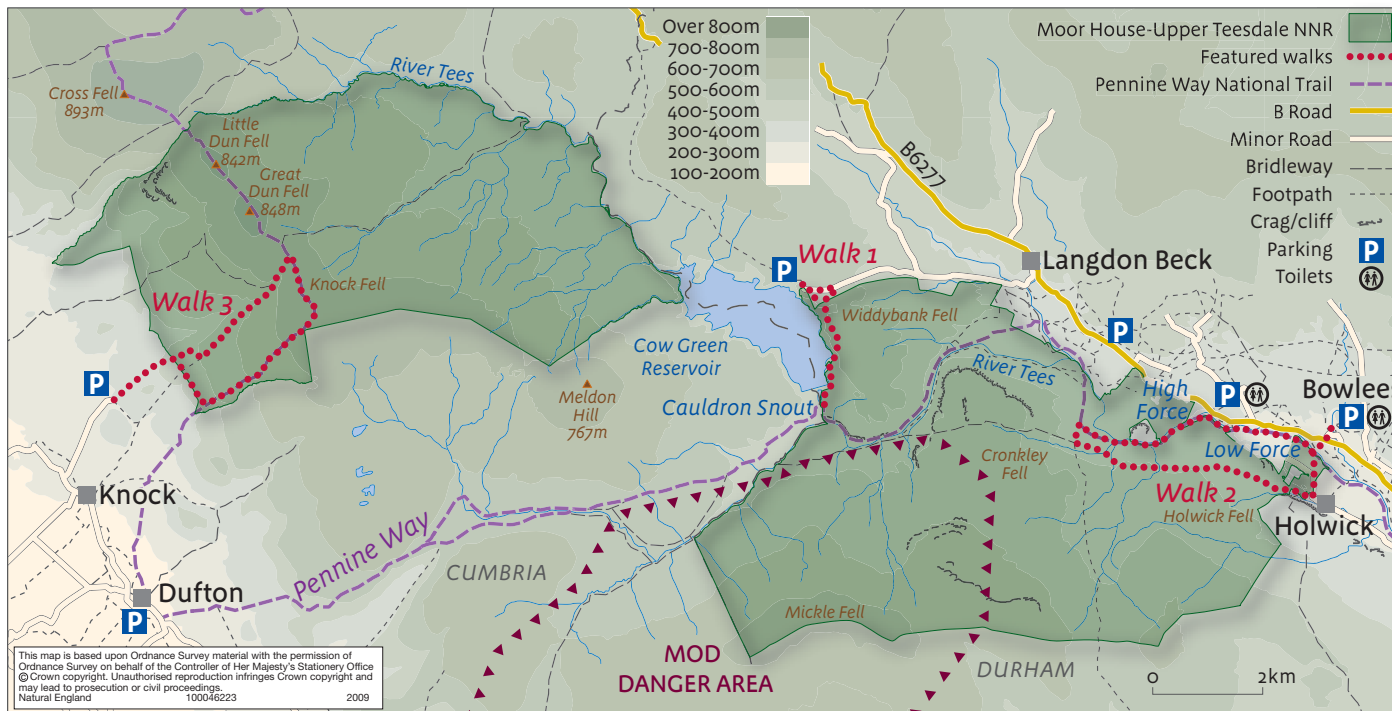
For information on public transport phone the local Tourist Information Centres

Middleton-in-Teesdale: 01833 641001

Alston: 01434 382244

Appleby: 017683 51177

Alston Road Garage [01833 640213] or Travel line [0870 6082608] can also help.



Take care

- For your own safety, please keep to the waymarked routes – there are hidden mineshafts in the area. Access to Mickel Fell (MOD Danger Area) is strictly by permit only – applications to:

**The Range Officer,
Warcop Training Area, Warcop,
Appleby, Cumbria CA16 6PA.**

- Carry weather-proof clothing and know how to use a map and compass – the weather on the Reserve is often cooler than lower down the valley, and can deteriorate rapidly.
- Take care with children – especially along the river bank where water levels can rise quickly, and in the juniper woods around High Force, where there are unfenced cliff edges hidden amongst the bushes.

Help to look after the Reserve

Work on this Reserve is an active partnership between Natural England, Raby and Strathmore Estates, their staff and tenants, Northumbrian Water, Mr ME and Mrs CM Bell, the Moor House Commoners Association, the local farming community, and the North Pennines AONB Partnership.



- Follow the Countryside Code, in particular, keep dogs on a lead to avoid disturbance to ground-nesting birds and grazing livestock.
- Hay meadows produce a valuable crop and birds nest there – they are not for football or picnics!
- Please do not camp or light fires.
- Please observe any Open Access restrictions – these are in place to protect the special wildlife of the area.

Juniper woodland near High Force



© Natural England / Charlie Hedley

Moor House – Upper Teesdale

On the backbone of England, around the headwaters of the River Tees, 8,800 hectares of upland country forms the Moor House – Upper Teesdale NNR.

The Reserve encompasses an almost complete range of upland habitats typical of the North Pennines, from lower lying haymeadows, rough grazing and juniper woods to limestone grassland, blanket bogs and the summit heaths of the high fells. Nowhere else in Britain is there such a diversity of rare habitats in one location.

The remote and dramatic landscape of Moor House – Upper Teesdale can be enjoyed from the Pennine Way National Trail, the Public Rights of Way network and on Open Access land. Three routes are suggested in this leaflet, suitable for a range of fitness levels. To find out more or to join one of our guided walks, events or volunteer days visit:
www.naturalengland.org.uk

The NNR is covered
by OS Outdoor
Leisure maps OL31
North Pennines and
OL19 Howgill Fells.

The Pennine Way alongside
the River Tees between
Widdybank Farm and
Cauldron Snout



Through the seasons

Farming, plants and birds

Spring is when the Reserve comes to life. Lambs are born on the upland farms, and wading birds such as lapwing, curlew and oystercatchers head to these high pastures to look for sites to nest and raise their chicks.

The skies are soon full of birds swooping and calling in spectacular aerobatic displays – first to attract mates but later turning to calls of alarm to distract predators away from eggs and young chicks. These birds make their nests on the ground, the chicks relying on camouflage to keep them safe. Both eggs and young are extremely vulnerable to trampling and attack by predators.

If you get up early enough you may be able to spot the rare black grouse at their 'leks'. The male 'blackcocks' put on an impressive display of dancing at dawn to attract the female 'greyhens'.



Spring is when the first flowers appear. The Reserve is famous for the rare spring gentian – Upper Teesdale is the only place in England where you can find these tiny bright blue flowers.

As spring turns to summer more flowers appear, and young wader chicks can be seen running around in the long grass searching for food. Traditional farming methods mean this is one of the best places to see colourful haymeadow flowers like globeflower, wood crane's-bill, orchids and yellow rattle. The grass and flowers are cut later in summer for hay to feed sheep and cattle over the winter.

By August the heather is in flower, turning the hills into a bright haze of purple. Red grouse live up here all year round, but in the summer you can also see visiting golden plover, and hear their haunting cries across the moors.

As autumn arrives and the days turn colder and shorter, the wading birds return to their winter feeding grounds on the coast. Fires can often be seen on the moors in autumn and winter as gamekeepers carry out controlled burns.



© John Worsnop

Globe flower

Burning ensures there is mixture of short, young heather and taller, older plants so that grouse and other birds have plenty of food and shelter.

Winters can be harsh in Upper Teesdale, with snow and strong cold winds. The cattle are shut up in their sheds, feeding on hay grown the previous summer, but the hardy Swaledale sheep stay out all winter.

Cutting hay at Widdybank



© Natural England / Martin Furness

Through time

Geology, archaeology and climate change

Sedimentary layers of limestone, sandstone and shale bedrocks in this area formed 340 million years ago when it lay under shallow tropical seas.

295 million years ago, molten magma from the earth's mantle intruded into the limestone and solidified to form quartz dolerite, known as the 'Great Whin Sill'. As it pushed through, the magma baked the surrounding limestone to form 'Sugar Limestone', a special type of rock which weathers to form coarse thin soil where the rare Arctic-alpine plants grow.

During the last Ice Age this area was covered in ice, which has shaped the landscape we see today. Arctic-alpine plants, such as the spring gentian, colonised the area when the ice melted and have survived here ever since.

Later on the first settlers arrived - remains of bronze age settlements, Romano-British farmsteads and medieval ironworking industry can all be seen around the Holwick area.

Millions of years ago, hot liquid from deep sedimentary basins was pushed up towards the earth's surface. As it cooled it deposited minerals into natural rock cavities, forming rich veins of galena (lead ore) and barytes (barium sulphate).



© Natural England / Charlie Hedley

The Great Whin Sill is a hard band of rock which you can see at High Force waterfall.

In the 1830s and 1840s the area was a hive of activity as the North Pennine ore-field became one of the most productive lead mining areas in the world – the pattern of small farms, spoil heaps, mine shafts and levels that we can see today all date from that time.

The landscape will not stay as we see it forever, and climate change is a big challenge to the habitats, plants and animals of the high Pennines, as well as the people who live and work here. Whilst we don't know exactly what is in store for us, the Reserve has a role to play in recording weather changes and conducting research into the effects of climate change on the uplands.

The peatbogs of the North Pennine uplands are a valuable carbon store. Blocking drains or 'grips' helps to stop peat erosion and slow down climate change. To find out more visit www.ecn.ac.uk

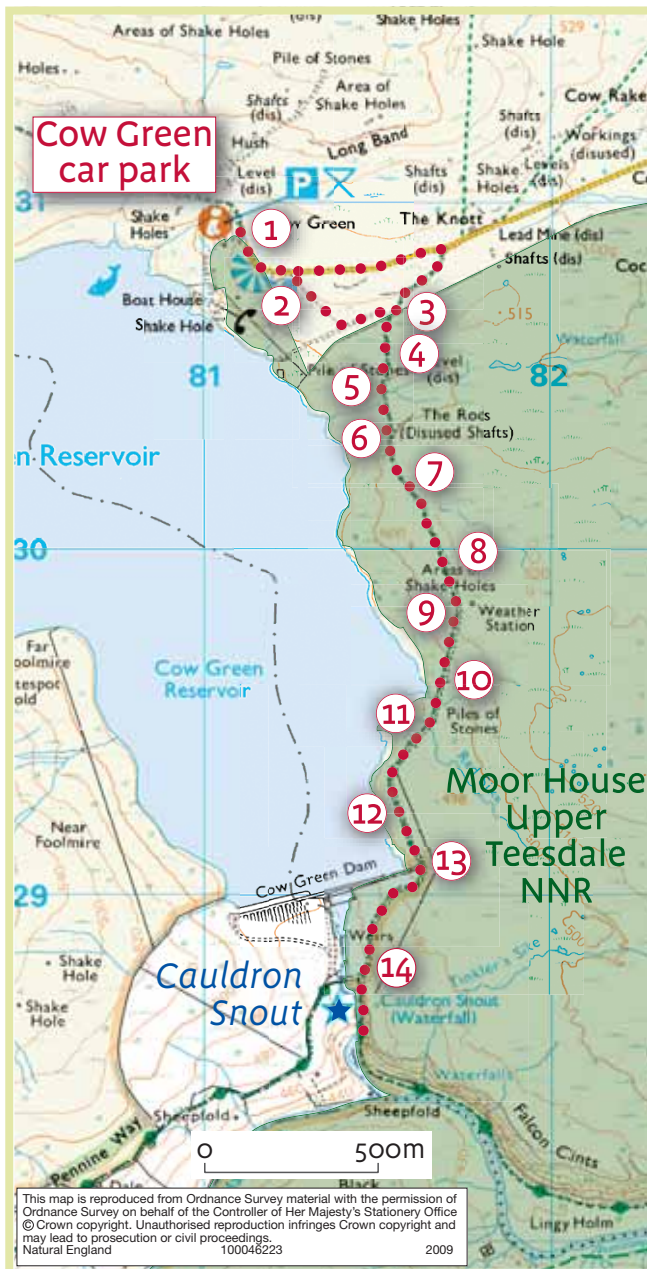


© Natural England / Martin Furness

Walk 1

Widdybank Fell Nature Trail

walk description
continued overleaf



This walk takes you over Widdybank Fell, along the track to Cow Green dam and Cauldron Snout waterfall.

Start point Cow Green car park
(grid ref: NY811 309)

Distance 5 km / 3 miles (2 hours)

Grade moderate (tarmac track with 1 large kissing gate and 3 steep sections). Suitable for pushchairs and wheelchairs with strong pusher!, except for last 100 m section to view Cauldron Snout, which is over a rough, rocky path - **take care!**

Facilities at start point – toilet (summer only), bike parking, free car parking.

① Across the reservoir you can see the high North Pennine summits, Great Dun Fell 848 m (with the radar station on top), Little Dun Fell 842 m, and Cross Fell 893 m (the highest point on the Pennine ridge).

Turn right off the road at ② here you are walking over limestone formed millions of years ago from the shells of sea creatures.

Walk 1

Widdybank Fell Nature Trail

Go through the gate at ③ looking out for the patches of wet ground – the soil here is peat, formed over thousands of years from accumulated undecayed plant material.

At ④ you notice a change in the vegetation – the soil here has formed on top of limestone, and is a good place to see flowers such as mountain pansies, wild thyme and tormentil.

Where the track drops down at ⑤ look at the rocky outcrop to your right and see the plants clinging to thin soils in the ledges. Here you may see common dog violet or rock rose.

Cross over Slapstone Sike. Here the water emerges out of the limestone, bringing with it dissolved minerals. This mineral-rich water produces flushes where bryophytes (mosses and liverworts), sedges and plants such as bird's-eye primrose grow.

At ⑥ you can see a spoil heap and the concrete cap of Rod's Vein – the remains of a barytes mine that was worked here until the 1950s. The main entrance to the mine is now submerged under the reservoir.

As you walk along the track, the vegetation changes again. Heather and bilberry grow on the peaty soil ⑦.

Look out for the arctic and alpine plants in the short green grass at ⑧. These are the special 'Teesdale Assemblage' famous amongst botanists the world over.

The weather station at ⑨ was set up in 1968 to measure the effect of Cow Green Reservoir on the local climate. Today it is used by scientists from the Centre for Ecology and Hydrology to measure the effects of climate change on upland plants and animals.

Look out for the rough granular Sugar Limestone rock at ⑩.

Further on you cross Red Sike ⑪. A rare algae in the water causes fragile bubble-like deposits to form here.

You can see more peat bog at ⑫ where sphagnum mosses and insect-eating plants such as butterwort and sundew live by the wet pools.

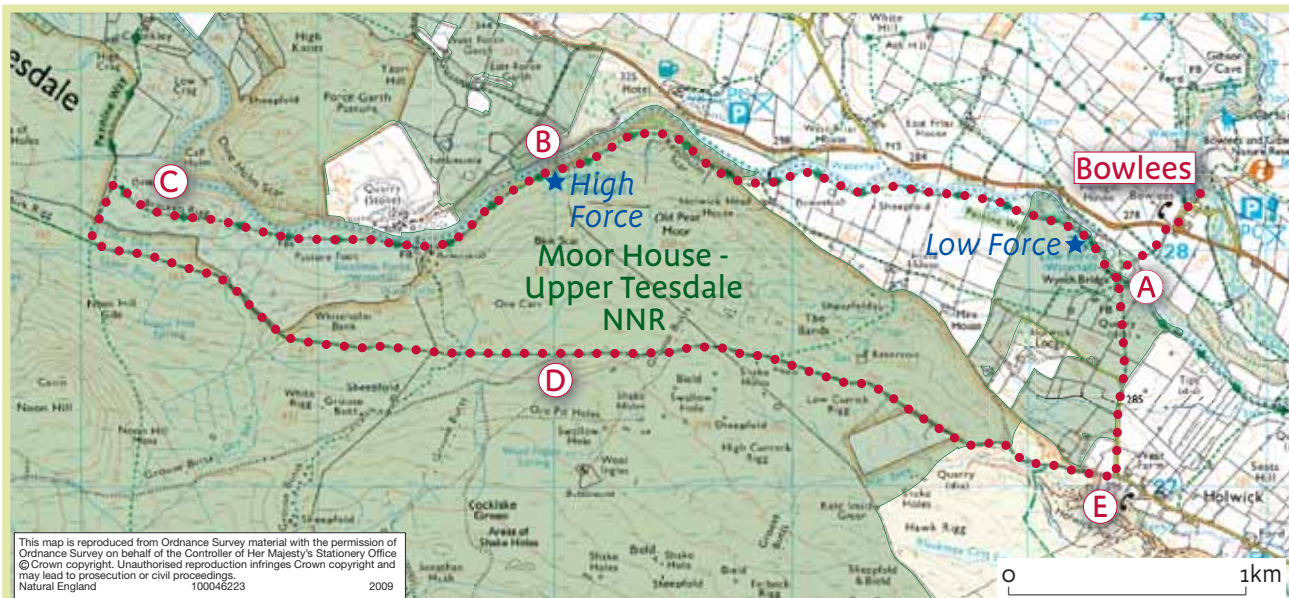
Cow Green dam is at ⑬. Because of the different geology on each side of the river, the eastern half of the dam is built of concrete tied into the Whin Sill, while the western half is an earth dam built over boulder clay.

At ⑭ you leave the main track and follow the rough path to the top of Cauldron Snout waterfall, where the river Tees flows over the Great Whin Sill. Take care as the rocks are slippery. This is the point to turn round and return to the car park.

Walk 2

Waterfalls and wildlife

walk description
continued overleaf



These walks follow the banks of the River Tees from Low Force, through the juniper woods up to High Force waterfall. Here you can turn round and follow the same route back (walk 2a), or continue further upriver and follow the lower slopes of Holwick Fell to return (walk 2b).

Start point Bowlees car park
(grid ref: NY908 283)

Walk 2a.

Distance 6 km / 3.5 miles (2.5 hours) to High Force and back.

Grade moderate (path mostly flat but uneven, with several stiles). Not suitable for pushchairs.

Walk 2b.

Distance 12 km / 7.5 miles (5 hours).

Grade medium-difficult (stiles, uneven and boggy paths, some steep climbs). OS map needed to follow this route.

Facilities at start point – visitors centre (with refreshments), picnic area, toilets and free car parking.

Walk 2

Waterfalls and wildlife

Starting at Bowlees, cross the B6277 road and follow the paths across the fields and over the river at Wynch Bridge **(A)**.

Turn right and follow the riverside path upstream. Look out for orchids and tall yellow globeflowers on the riverbanks and in the haymeadows beside the path.

Look out on the riverbank for two of Upper Teesdale's special plants. Three species of lady's mantle found in Upper Teesdale grow nowhere else in Britain, and shrubby cinquefoil is found as a native wild plant only in Teesdale and Cumbria.

Keep following the Pennine Way riverside path, up a short steep section and through a gate into England's largest juniper wood. The bushes here are very old (some over 250 years old!) and need help to regenerate. Every year we collect berries to grow into young juniper plants – you can see some recently planted junipers beside the path, in guards that stop them being eaten by rabbits.

At 21 metres, High Force is England's largest waterfall **(B)**. You can see the Great Whin Sill forming columns beside the waterfall. Take care here as there are unfenced cliffs and rocks that can be slippery.



Walkers on the Wynch Bridge

Walk 2a - You now retrace the walk back down river to Wynch Bridge and Bowlees.

Walk 2b - Continue upstream along the path past the Whinstone quarry and up onto Bracken Rigg **(C)**. This area is rich in archaeology, with remains of farmsteads and iron smelting dating back as far as the Bronze Age.

Take the path to the left from Bracken Rigg, through a gate, then turn left again and climb the hill following the ancient Green Trod drove road over the moor. Look out for red grouse and golden plover. At the signpost **(D)** take the track leading east down the hill towards Holwick, cross the sheep stile and follow the track down to the road **(E)**. Turn left and continue down the hill, across the fields and back to Wynch Bridge and the start.

Walk 3

Up on the ridge

walk description
continued overleaf

This walk takes you right up along the summit ridge of the Pennines. You'll be able to see evidence of the area's mining and quarrying history, take in some stunning views over the high Pennines, and look across the Eden Valley to the Lake District fells.



Start point at the end of the public road from Knock village, past Knock Christian centre (grid ref: NY686 288).
Please park with consideration.

Distance 12 km / 7.5 miles (5 hours).

Grade difficult (steep climbs, uneven paths). OS map needed to follow the route.

Facilities at start point – none (parking by roadside only).

Walk 3

Up on the ridge

From the start follow the road up the hill past the Reserve sign and old lime kiln **(A)**. As you climb alongside Knock Ore Gill, look out for the remains of the winding engine that powered the aerial ropeway that used to carry the mineral barytes down from the mine.

As the road climbs up the narrowing valley **(B)** look to your left at Green Castle.

As you climb out of the valley, you'll find yourself on the summit ridge. At the top of Great Dun Fell you can see the Radome used for air traffic control. From the junction of the road and the Pennine Way **(C)** you look over an important area of blanket bog and beyond to Cow Green Reservoir.

Looking over Dufton Pike and the Eden Valley



© Natural England / Heather McCarty



© Natural England / McCoy-Wynne

Looking towards the Radome on Great Dun Fell

At this point you can retrace your steps back down the road, taking in extensive views of the Eden Valley and beyond to the Lake District. But the more adventurous walker may wish to follow the Pennine Way to their right along the rough grassy summit ridge, and down the fellside. Take a right at a Reserve sign **(D)** and, keeping the wall on your left, you will end up back at the road **(A)**. Follow the road back down to the start.